

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
5 April 2001 (05.04.2001)

PCT

(10) International Publication Number  
**WO 01/23583 A2**

(51) International Patent Classification<sup>7</sup>: **C12N 15/55**,  
15/54, 15/10, 9/22, 9/12, C12Q 1/68, C12P 19/34

(21) International Application Number: **PCT/EP00/09423**

(22) International Filing Date:  
27 September 2000 (27.09.2000)

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:  
99119268.3 28 September 1999 (28.09.1999) **EP**

(71) Applicant (for all designated States except US): **ROCHE  
DIAGNOSTICS GMBH [DE/DE]; 68298 Mannheim  
(DE).**

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ANKENBAUER,  
Waltraud [DE/DE]; Oberanger 18, 82377 Penzberg (DE).**

**LAUE, Frank [DE/DE]; Bachaecker 11, 82396 Paehl-Fis-  
chen (DE). SOBEK, Harald [DE/DE]; Birkenstrasse 29,  
82377 Penzberg (DE). GREIF, Michael [DE/DE]; Fleck  
28, 83661 Lenggries (DE).**

(74) Common Representative: **ROCHE DIAGNOSTICS  
GMBH; Patent Department, 68298 Mannheim (DE).**

(81) Designated States (national): **AU, CA, CN, IL, JP, NO,  
NZ, RU, SG, US.**

(84) Designated States (regional): **European patent (AT, BE,  
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,  
NL, PT, SE).**

**Published:**

— *Without international search report and to be republished  
upon receipt of that report.*

*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: **THERMOSTABLE ENZYME PROMOTING THE FIDELITY OF THERMOSTABLE DNA POLYMERASES- FOR  
IMPROVEMENT OF NUCLEIC ACID SYNTHESIS AND AMPLIFICATION *IN VITRO***

(57) Abstract: **A purified thermostable enzyme is derived from the thermophilic archaebacterium *Archaeoglobus fulgidus*. The  
enzyme can be native or recombinant, is stable under PCR conditions and exhibits double strand specific exonuclease activity. It is  
a 3'-5' exonuclease and cleaves to produce 5'-mononucleotides. Thermostable exonucleases are useful in many recombinant DNA  
techniques, in combination with a thermostable DNA polymerase like *Tag* especially for nucleic acid amplification by the polymerase  
chain reaction (PCR).**

**WO 01/23583 A2**